

CLAIMS

- Substantive*
1. Storage/discharge device integral with a low impedance current pool structure or a plurality of low impedance current pool means to yield multiple confluent current paths, characterized in that by connecting in parallel current pool terminals of identical voltage rating and of electrode boards of like polarities from tanks of like polarities from tanks of dissimilar polarities, or alternatively by series connection or compound serial/parallel combination of current pool terminals way between electrode boards of dissimilar polarities a low impedance structure for input/output current pool is achieved on the exteriority of the positive or negative electrode board on both sides of individually installed electrode tanks.
2. Low impedance current pool assembly according to claim 1, as integral with said storage/discharge device, to be connected into a tank of identical polarity electrodes, or a tank of dissimilar polarity electrodes by means of coupling conductors, whereof said current pool terminals of identical potentials and identical polarity are in parallel, or serving to be connected with current pooling terminals between electrode boards of dissimilar polarities in a tank of dissimilar electrodes, executed in serial connection or compound serial/parallel connection; on the exterior side of the electrode board, of positive or negative polarity, on both sides of the individually installed electrode tank is executed a low impedance current pool structure of any chosen geometry to facilitate infeeding/outfeeding of confluent currents,

executed in the form of inflowing/effluent pooling terminals, or that incorporated with parallel current pool conductor, or as made from material of better conductivity with a view to reduce the resistance to infeeding/outfeeding confluent currents; structurally it can comprise singly or plurally any or some of the features listed below:

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- plate or strip or web form structure for connection to respective output/input current pool terminals T100 of which individual electrode tanks are installed outside the positive or negative polarity electrode board P200, on both sides of the electrode tank, or other low impedance current pool conductor assembly made of chosen materials in otherwise geometrical configurations;
 - plate or strip or web form structure for connection to respective output/input current pool terminals of which individual electrode tanks are installed outside the positive or negative polarity electrode boards on both sides of the electrode tank, with areas between consecutive output current pool terminals interconnected by welding, soldering, rivetting or screwing technique, or prestressed, or burial or inlay or otherwise means, to facilitate pooling of input/output currents, or other low impedance current pool conductor assembly of chosen material in otherwise geometrical configuration;
 - plate or strip or web form structure with output/input current pool terminals associated with the overall storage/discharging device being installed outside the positive or negative polarity electrode board on both sides of the electrode tank, to facilitate transitting of

incoming/outgoing current pool, or low impedance current pool conductor assembly of chosen material but otherwise geometrical configuration, said plate form encompassing thickened board of uniform or non-uniform, tilted sheets;

5 - current pool terminals for input/output purposes secured by soldering, welding, rivetting, screwing, prestressing technique or by burial, inlay or otherwise means among themselves, established outside the positive or negative polarity electrode boards on both sides of the electrode tank, led to correspondent terminals on the master storage/Discharge Assembly, in plate or strip or web form to facilitate pooling of incoming/outgoing currents, being a low impedance conductive assembly of a chosen geometry or otherwise materials;

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15 - Interconnect pieces or bars of conductors of a chosen geometry and of chosen materials interposed between parallel conductors between sets of input/output current pool terminals on a plurality of electrode boards of like polarities;

20 - Interconnect pieces or bars of chosen geometry and material incorporated additionally between a plurality of serially parallelly connected conductors on input/output current pool terminals on sets of electrode boards of dissimilar polarities.

25 3. Low impedance current pool structure integral with the storage/discharge device according to claim 1, characterized in that the positive or negative polarity electrode board can be composed of other low impedance materials where needed different from those low impedance structure disclosed in the foregoing in respect of its

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exteriority, and as part of which the current pool terminals for input/output purposes can be provided singly or plurally, on single side or on more than one side.

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4. Low impedance current pool structure as dependent on the storage/discharge device according to claim 1, whereof the design in respect of the improvement of the positive or negative exteriority of the electrode board on both sides of the independently installed electrode tank is thus: having one or more piece of parallellled positive electrode board P100 and as matched thereto, one or more piece of parallellled negative electrode board P100, set in individual electrode tanks to constitute individual electrode pairs, then have flat plate form current pool conductor assembly of chosen material and made to specified thickness installed way between respective current pool terminals on the exteriority of positive or negative electrode board P200 on both sides of each individual electrode tank, so that it is made that the impedance prevalent way between the current pool terminals on the periphery of the external positive or negative electrode board P200 is inferior to that impedance prevailing across the normal electrode surface duly applied with one layer of chemically active material in lattice configurations on the same electrode board;

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5. Low impedance current pool structure as dependent upon the storage/discharge device according to claim 1 whereof the exteriority of the external electrode board in respective individual electrode tank is processed into a current pool conductor in the form of a plank lamina or thickened lamina of uniform elements or non-uniform elements processed to

present a slope.

6. Low impedance current pool structure as dependent upon the storage/discharge device according to claim 1, whereof the outside of the positive or negative electrode board P200 on both sides of the individual present in the independently installed electrode tank, way between respective current pool terminals T100, is processed straight into webform conductor assembly of chosen thickness.

7. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof in the individual electrode pairs formed in the independently installed electrode tank, way between the current pool terminals outside the positive or negative polarity electrode board P200 on both sides, pieces or webform or stripe form current pool conductor assembly are interconnected by soldering, welding, rivetting, screw coupling, prestressed bonding, internal burial, laying or otherwise technique, in order that the impedance prevailing between the current pool terminals T100 on the perimeter of the externally provided positive or negative polarity electrode boards be controlled inferior to the impedance on the normal electrode surface on the other side of the same electrode board that is applied with a lattice work of chemically active coating.

8. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof the said electrode board with plate form terminals on the outside is good for connection to two or more than two independent electrode tanks, and hence good for like polarity on like polarity parallelling or opposite polarity

2/19/92 serial connection under the same voltage specifications.

9. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof required on that side of the externally provided plate-form terminalled electrode board meant to couple with current pool terminals coming from other electrode tanks may be mounted two or more than two current pool terminals to thereby account for multiple coupling possibilities so that impedance is lowered in the long run.
10. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof the current conductor assembly outside the positive or negative electrode board P200 on both sides of the individual electrode tank in particular, are provided two current pool terminals T100 to accommodate serial or parallel combination with each electrode tank where multiple sets of electrode tanks are deployed for application;
11. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof with a view to further reduce the impedance on the part of both the current pool terminal and of the electrode board, a feasible approach is to process the current pool terminal trapezoidal extending outwardly, such that the wider base of the trapezoidal current pool terminal is coupled to the electrode board, whereby the internal impedance on the terminal, output or input, of the electrode board, is duly reduced.

examples of application of the aforementioned trapezoidal current pool terminal and electrode boards include: normal electrode boards P100 with both sides

applied with latticed chemically active coating, two or more than two outputting or inputting current pool terminal T100 on the outside of the positive or negative polarity electrode board P200 on both sides of each electrode tank, possible for mounting on one side or more sides of the electrode board P100 or the positive or negative electrode board P200, or for one or more current pool terminal to be installed on two or more sides of the electrode board P100 or of the positive or negative polarity electrode board.

12. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof two trapezoidal current pool terminals T100 in the middle of one external side of the positive or negative electrode board P200 on both sides of the individually installed electrode tank, just to make for a correspondent positive or negative electrode pair with the electrode board.

13. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof trapezoidal current pool terminals T100 are provided on both sides of the exteriority of the positive or negative electrode board P200 on both sides of each individual electrode tank, to form electrode pair with electrode board symmetrically.

14. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof on either of both external sides of the positive or negative electrode board P200 on both sides of individual electrode tank are installed two trapezoidal current pool terminals T100, extending outwardly, characterized in that a dimensional differential exists between the hunch peak of

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current pool terminals on the same sides of the trapezoid and the edges on both sides of the electrode board so that once an electrode pair is produced by superposing the backsides of the two similarly configured electrode boards, interwoven superposition is made involving the positive/negative polarity electrodes of adjacent electrode boards, with current pool terminals T100 intercrossing but not intervening each other, so as to facilitate interactive coupling, with better current pooling effects realized on the basal area of the wider trapezoid.

15.Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof three externally extending trapezoidal current pool terminals T100 on each external side of the positive or negative polarity electrode board P200 on both sides of the electrode tank, characterized in that a dimensional differential exists between the hunchback of current pool terminals on the same side of the trapezoid and the edges on both sides of the electrode board, so that once an electrode pair is produced by superposing the backsides of the two similarly configured electrode boards, interwoven superposition is made involving the positive/negative polarity electrodes of adjacent electrode boards, with current pool terminals T100 intercrossing but not intervening each other, so as to facilitate interactive coupling, with better current pooling effects realized on the basal area of the wider trapezoid.

16.Low impedance current pool structure as part of the storage/discharge device according to claim 1,whereof an

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outwardly extending trapezoidal current pool terminal T100 on two opposite sides of a quadrilateral positive or negative electrode board P200 on both sides of individually installed electrode tank, characterized in that a dimensional differential is maintained between the hunch peak of current pool terminals on the same sides of the trapezoid and the edges on both sides of the electrode board so that once an electrode pair is formed by superposing the backsides of the two similarly configured electrode boards, interwoven super-positions is made involving the positive/negative polarity electrodes of adjacent electrode boards, with current pool terminals T100 intercrossing but not intervening each other, so as to facilitate interactive coupling, with better current pooling effects realized on the basal area of the wider trapezoid.

17. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof two outwardly extending trapezoidal current pool terminals T100 on two opposite sides of a quadrilateral positive or negative electrode board P200 on both sides of individually installed electrode tank, characterized in that a dimensional differential is maintained between the hunch peak of current pool terminals on the same sides of the trapezoid and the edges on both sides of the electrode board so that once an electrode pair is formed by superposing the backsides of the two similarly configured electrode boards, interwoven super-positions is made involving the positive/negative polarity electrodes of adjacent electrode boards, with current pool terminals T100

intercrossing but not intervening each other, so as to facilitate interactive coupling, with better current pooling effects realized on the basal area of the wider trapezoid.

5 18. Low impedance current pool assembly as part of the storage/discharge device according to claim 1, whereof three outwardly extending trapezoidal current pool terminals T100 on two opposite sides of a quadrilateral positive or negative electrode board P200 on both sides of
10 individually installed electrode tank, characterized in that a dimensional differential is maintained between the hunch peak of current pool terminals on the same sides of the trapezoid and the edges on both sides of the electrode board so that once an electrode pair is created by
15 superposing the backsides of the two similarly arrayed electrode boards, interwoven superposition is made involving the positive/negative polarity electrodes of adjacent electrode boards, with current pool terminals P100
20 intercrossing but not intervening each other, so as to facilitate interactive coupling, with better current pooling effects realized on the basal area of the wider trapezoid.

19. Low impedance current pool assembly as part of the storage/discharge device according to claim 1, whereof an
25 outwardly extending trapezoidal current pool terminal T100 on two opposite sides of a quadrilateral positive or negative electrode board P200 on both sides of individually installed electrode tank, characterized in that a dimensional differential is maintained between the hunch
30 back of current pool terminals on the same sides of the

trapezoid and the edges on both sides of the electrode board so that once an electrode pair is created by superposing the backsides of the two similarly configured electrode boards, interwoven superposition is made involving the positive/negative polarity electrodes of adjacent electrode boards, with current pool terminals P100 intercrossing but not interfering each other, so as to facilitate interactive coupling, with better current pooling effects realized on the basal area of the wider trapezoid.

20. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof two outwardly extending trapezoidal current pool terminals T100 on two opposite sides of a quadrilateral positive or negative electrode board P200 on both sides of individually installed electrode tank, characterized in that a dimensional differential is maintained between the hunch back of current pool terminals on the same sides of the trapezoid and the edges on both sides of the electrode board so that once an electrode pair is created by superposing the backsides of the two similarly configured electrode boards, interwoven superposition is made involving the positive/negative polarity electrodes of adjacent electrode boards, with current pool terminals P100 intercrossing but not interfering with each other, so as to facilitate interactive coupling, with better current pooling effects realized on the basal area of the wider trapezoid.

21. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof in

its application to quadrilateral or nearly quadrilateral electrode boards, apart from the provision of current pool terminals on two or four sides, it is also feasible to provide current pool terminals on three sides of the electrode board too, and the configuration of said electrode board is not restricted to a quadrilateral only, indeed it can instead take the form of a circle, a near circle, an ellipse, a near ellipse, a triangle, a polylateral, including without limitation: triangle, quadrilateral, quintuple lateral, hexagon, septuple lateral, octuple lateral, with each electrode board furnished with two or more than two current pool terminals so that each electrode board is equipped with two or more than two current pooling loops.

22. Low impedance current pool structure as part of the storage/discharge device according to claim 1, whereof the special features emerge by reason of applicational particularities respecting the electrode board in use, some or all of the following features are inherent:

- the positive polarity electrode board and negative polarity electrode board being configured circular, nearly circular, elliptical, nearly elliptical, triangular or polylateral, such as, for example, quadrilateral, quintuple lateral, hexagonal, septuple lateral, octuple lateral, and polylateral of even higher orders, to accommodate parallel combination with current pool terminals of identical voltage specifications and of like polarities on each working electrode board from paired or dissimilar electrode tanks; or alternatively to accommodate coupling with current pool terminals between electrode boards of opposite

polarities in different electrode tanks, the coupling being serial, parallel or compound serial/parallel combinations;

- where the low impedance current pool structure of the storage/discharge device is to be applied on non-polar storage/discharge device, a capacitor, for instance, said positive electrode board and negative electrode board will have to be replaced with a non-polar first electrode board and a non-polar second electrode board;

- where the rod conductor is meant for penetration across and coupling with conductive penetration holes on an electrode board, and once coupled together the rod conductor and the electrode board exhibit good conductive state; it is then because that the rod conductor is composed of a circular, square, triangular, elliptical or otherwise configured geometry, hardcore conductive bar or hollow-set bar, or flexible tube of non-closed hollow-set structure having axial fissures thereon;

Said rod conductor may be further processed to have both ends thereof embossed with a cap, screwnut, screwed, unilaterally compressioned cushion-insulated isolation bumper to exert compression against electrode board sets thereby enhancing the stability of the assembly at large;

- the rod conductor in the above-mentioned structure serves to penetrate the conductive penetration holes on like polarity electrode boards in discharge of its parallel current pooling capabilities; or in discharge of serial capabilities by penetrating across dissimilar polarity electrode conductive penetration holes; or still serves to consummate parallel current pooling and serial combination functions by penetrating simultaneously across like

polarity and dissimilar polarity electrodes;

- where the said rod conductor is composed of hollow-set tubes, it is feasible, where preferred, to install gas or fluid pumps and cooling radiator or on the contrary temp.

5 upgrading heater serving to pump the gaseous or fluid liquids through tubular rod conductor duly modulated with cooling or heating, that is, temp. regulations;

- where a rod conductor serves as the structure for parallel current pool and the fluid passing by is an isolation fluid, then the tubular rod conductor on all electrodes of like potential level can altogether form a straight series loop or parallel loop;

10 where a rod conductor serves the purpose of parallel current pool concurrent with series combination applications, rod conductors of dissimilar potential levels can be connected in series or parallel by means of isolation conduits to facilitate passing of insulant gaseous or fluid liquids in respect of which temp. regulation is possible with cooling or heating techniques;

- 15 - isolation rings or tubular insulants to be inserted into the isolation penetration holes on the rod conductors and on the electrode boards to be run through, to safeguard insulation and further enhance structural safety among electrode boards themselves;

25 - installation of insulation shoes in isolation gaps on electrode boards rod conductors will pass and the rod conductors themselves to ensure insulation and further upgrade electrode board to electrode board structural stability;

- 30 - installation of spacing stability shoes on the rod

conductors and the isolation space on the electrode board which the rod conductor will pass, to ensure insulation and as an effort to enhance additionally electrode board to electrode board structural security;

5 - two or more than two current pool terminals each extending outwards on two or more than two sides of individual electrode boards to facilitate multiple parallel combination between electrode boards of like polarities, or alternatively to make serial combination between
10 electrode boards of dissimilar polarities and to enable concurrently two or more than two current paths in the wake of any input or output current on a same electrode board in the storage battery, so that the internal impedance on the part of the battery when an input or output is in progress,
15 is duly reduced;

- the insulation being composed of partitioned insulants of dissimilar polarities or insulant membranes, insulant mats furnished between electrode boards of dissimilar polarities; where the insulants are installed by coupling technique,
20 by sleeving, for example, they may be executed in insulation sleeveings applied onto electrode boards of both polarities or instead onto electrode boards of either polarity, positive only or negative only;

- the container of the storage/discharge device being a shell
25 casing, and composed of insulant or non-insulant materials, serving to protect the electrode boards too; where it is made of non-insulant materials, the interior of the casing and the interspacings of the electrodes within must be covered with insulant reinforcements.

30 23. Low impedance current pool structure as part of the

storage/discharge device according to claim 1,whereof
apart from the input/output current pool terminals on the
positive, negative electrode boards on both sides of the
electrode tank which, as required, may be installed singly
5 or plurally, on one side or on more sides, all the other
electrode boards can be structured such that one or more
current pool terminal individually extending outwards are
installed on two or more than two sides on individual
electrode boards; or such that two or more than two current
10 pool terminals are all installed on just one side or more
sides, to enable multiple current path parallelling
converged on electrode boards of like polarities, or
instead multiple path series connection between electrode
boards of dissimilar polarities; structurally, the current
15 pool terminals are made of hardcore or hollow-set tubular
rod conductors bearing circular, square, otherwise
geometric configurations, to be mounted into position
across the conductive penetration holes present way between
the electrode boards of the storage/discharge device, so
20 that parallel connection is made possible with electrode
boards of like polarities, or alternatively serial
connection is made among electrode boards of dissimilar
polarities, so still so that a combined serial/parallel
connection is consummated: further parallel execution is
25 extended to encompass the current pool terminals, being
conductor themselves; such that they, of identical voltage
specifications and on electrode boards of like polarities,
from the same or different electrode tanks, the extension
goes to series connection too, by interconnecting current
30 pool terminals between electrode boards of different

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polarities from dissimilar electrode tanks serially and hence compound serial/parallel combination is made possible forthwith, and that complemented with the effort of a low impedance structure whereby input/output current pool terminals are combined to facilitate pooling of incoming/outgoing currents, on the exteriority of positive or negative electrode boards on both sides of individually installed electrode tanks, or alternatively supplemented with parallel run current pool conductors in an effort to reduce impedance to the confluent incoming or outgoing currents.

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